

CLAIMS

1. A mobile communication system comprising a mobile station apparatus that transmits data transmission rate request value, and a base station apparatus that selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile station apparatus and transmits data to the selected mobile station apparatus at the data transmission rate request value received from the selected mobile station apparatus,

wherein the mobile station apparatus comprises:
first receiving means for receiving an average data transmission rate transmitted from the base station apparatus;

measuring means for measuring quality of the received signal from the base station apparatus;

deciding means for deciding the data transmission rate request value based on the reception quality measured by said measuring means;

first calculating means for calculating a difference between the data transmission rate request value decided by said deciding means and the average data transmission rate received by said first receiving means;

judging means for judging whether or not the result of calculation by said first calculating means is equal to or larger than a reference value; and

first controlling means for making the data transmission rate request value decided by said deciding means be transmitted to the base station apparatus when it is judged by said judging means that the result of calculation by said first calculating means is equal to
5 or larger than the reference value, and

wherein the base station apparatus comprises:

second receiving means for receiving the data transmission rate request value transmitted from the
10 mobile station apparatus;

selecting means for selecting the mobile station apparatus to which data is transmitted based on the data transmission rate request value received by said second receiving means;

15 second calculating means for calculating an average of a data transmission rate for transmitting data to the mobile station apparatus selected by said selecting means as the average data transmission rate; and

second controlling means for making the average data
20 transmission rate calculated by said second calculating means be transmitted to the mobile station apparatus.

2. A communication method in a mobile communication system comprising a mobile station apparatus that transmits data transmission rate request value, and a
25 base station apparatus that selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile

station apparatus and transmits data to the selected mobile station apparatus at the data transmission rate request value received from the selected mobile station apparatus, comprising:

5 a first receiving step in which the mobile station apparatus receives an average data transmission rate transmitted from the base station apparatus;

 a measuring step in which the mobile station apparatus measures quality of the received signal from
10 the base station apparatus;

 a deciding step in which the mobile station apparatus decides the data transmission rate request value based on the reception quality measured in said measuring step;

 a first calculating step in which the mobile station
15 apparatus calculates a difference between the data transmission rate request value decided in said deciding step and the average data transmission rate received in said first receiving step;

 a judging step in which the mobile station apparatus
20 judges whether or not the result of calculation in said first calculating step is equal to or larger than a reference value;

 a first controlling step in which the mobile station apparatus makes the data transmission rate request value
25 decided in said deciding step be transmitted to the base station apparatus when it is judged in said judging step that the result of calculation in said first calculating

step is equal to or larger than the reference value;

a second receiving step in which the base station apparatus receives the data transmission rate request value transmitted from the mobile station apparatus;

5 a selecting step in which the base station apparatus selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received in said second receiving step;

a second calculating step in which the base station
10 apparatus calculates an average of a data transmission rate for transmitting data to the mobile station apparatus selected in said selecting step as the average data transmission rate; and

a second controlling step in which the base station
15 apparatus makes the average data transmission rate calculated in said second calculating step be transmitted to the mobile station apparatus.

3. A mobile station apparatus used in a mobile communication system comprising the mobile station
20 apparatus that transmits data transmission rate request value, and a base station apparatus that selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile station apparatus and transmits data to the
25 selected mobile station apparatus at the data transmission rate request value received from the selected mobile station apparatus, comprising:

first receiving means for receiving an average data transmission rate transmitted from the base station apparatus;

measuring means for measuring quality of the
5 received signal from the base station apparatus;

deciding means for deciding the data transmission rate request value based on the reception quality measured by said measuring means;

first calculating means for calculating a
10 difference between the data transmission rate request value decided by said deciding means and the average data transmission rate received by said first receiving means;

judging means for judging whether or not the result of calculation by said first calculating means is equal
15 to or larger than a reference value; and

first controlling means for making the data transmission rate request value decided by said deciding means be transmitted to the base station apparatus when it is judged by said judging means that the result of
20 calculation by said first calculating means is equal to or larger than the reference value.

4. The mobile station apparatus according to claim 3, further comprising error detecting means for detecting an error of the received signal from the base station
25 apparatus, and wherein said first controlling means makes the data transmission rate request value decided by said deciding means be transmitted to the base station

apparatus when it is determined by said error detecting means that the received signal is errorless and when it is judged by said judging means that the result of calculation by said first calculating means is equal to
5 or larger than the reference value.

5. A method of controlling information transmission in a mobile station apparatus used in a mobile communication system comprising the mobile station apparatus that transmits data transmission rate request
10 value, and a base station apparatus that selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile station apparatus and transmits data to the selected mobile station apparatus at the data
15 transmission rate request value received from the selected mobile station apparatus, comprising:

a first receiving step of receiving an average data transmission rate transmitted from the base station apparatus;

20 a measuring step of measuring quality of the received signal from the base station apparatus;

a deciding step of deciding the data transmission rate request value based on the reception quality measured in said measuring step;

25 a first calculating step of calculating a difference between the data transmission rate request value decided in said deciding step and the average data transmission

rate received in said first receiving step;

a judging step of judging whether or not the result of calculation in said first calculating step is equal to or larger than a reference value; and

5 a first controlling step of making the data transmission rate request value decided in said deciding step be transmitted to the base station apparatus when it is judged in said judging step that the result of calculation in said first calculating step is equal to
10 or larger than the reference value.

6. A base station apparatus used in a mobile communication system comprising a mobile station apparatus that transmits data transmission rate request value, and the base station apparatus that selects the
15 mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile station apparatus and transmits data to the selected mobile station apparatus at the data transmission rate request value received from the
20 selected mobile station apparatus, comprising:

second receiving means for receiving the data transmission rate request value transmitted from the mobile station apparatus;

selecting means for selecting the mobile station
25 apparatus to which data is transmitted based on the data transmission rate request value received by said second receiving means;

second calculating means for calculating an average of a data transmission rate for transmitting data to the mobile station apparatus selected by said selecting means as the average data transmission rate; and

5 second controlling means for making the averaged data transmission rate calculated by said second calculating means be transmitted to the mobile station apparatus.

7. A method of controlling information transmission in a base station apparatus used in a mobile communication
10 system comprising a mobile station apparatus that transmits data transmission rate request value, and the base station apparatus that selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile
15 station apparatus and transmits data to the selected mobile station apparatus at the data transmission rate request value received from the selected mobile station apparatus, comprising:

 a second receiving step of receiving the data
20 transmission rate request value transmitted from the mobile station apparatus;

 a selecting step of selecting the mobile station apparatus to which data is transmitted based on the data transmission rate request value received in said second
25 receiving step;

 a second calculating step of calculating an average of a data transmission rate for transmitting data to the

mobile station apparatus selected in said selecting step as the average data transmission rate; and

a second controlling step of making the average data transmission rate calculated in said second calculating
5 step be transmitted to the mobile station apparatus.

8. A mobile communication system comprising a mobile station apparatus that transmits data transmission rate request value, and a base station apparatus that selects the mobile station apparatus to which data is transmitted
10 based on the data transmission rate request value received from the mobile station apparatus and transmits data to the selected mobile station apparatus at the data transmission rate request value received from the selected mobile station apparatus,

15 wherein the mobile station apparatus comprises:
first measuring means for measuring quality of the received signal from the base station apparatus;

deciding means for deciding the data transmission rate request value based on the reception quality measured
20 by said first measuring means;

first storing means for storing the data transmission rate request value decided by said deciding means;

first judging means for comparing the previous data
25 transmission rate request value stored in said first storing means and the latest data transmission rate request value, and judging whether or not both thereof

are different from each other; and

controlling means for making the latest data transmission rate request value be transmitted to the base station apparatus when it is judged by said first
5 judging means that the previous data transmission rate request value and the latest data transmission rate request value are different from each other, and

wherein the base station apparatus comprises:

second measuring means for measuring quality of the
10 received signal from the mobile station apparatus;

receiving means for receiving the data transmission rate request value transmitted from the mobile station apparatus;

second storing means for storing the data
15 transmission rate request value received by said receiving means by relating it to the mobile station apparatus;

second judging means for judging, when there is any mobile station apparatus the data transmission rate
20 request value of which has not been received this time by said receiving means, as for the relevant mobile station apparatus, whether or not the reception quality measured by said second measuring means is equal to or larger than a reference value; and

25 control means for using, when it is judged by said second judging means that the measured value of the reception quality is equal to or larger than the reference

value, as for the relevant mobile station apparatus, the previous data transmission rate request value stored in said second storing means as the data transmission rate request value to be used for selecting the mobile station apparatus to which data is transmitted.

9. A communication method in a mobile communication system comprising a mobile station apparatus that transmits data transmission rate request value, and a base station apparatus that selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile station apparatus and transmits data to the selected mobile station apparatus at the data transmission rate request value received from the selected mobile station apparatus, comprising:

a first measuring step in which the mobile station apparatus measures quality of the received signal from the base station apparatus;

a deciding step in which the mobile station apparatus decides the data transmission rate request value based on the reception quality measured in said first measuring step;

a first judging step in which the mobile station apparatus compares the previous data transmission rate request value stored in first storing means for storing the data transmission rate request value decided in said deciding step and the latest data transmission rate

request value, and judges whether or not both thereof are different from each other;

a controlling step in which the mobile station apparatus makes the latest data transmission rate request value be transmitted to the base station apparatus when it is judged in said first judging step that the previous data transmission rate request value and the latest data transmission rate request value are different from each other;

10 a second measuring step in which the base station apparatus measures quality of the received signal from the mobile station apparatus;

a receiving step in which the base station apparatus receives the data transmission rate request value transmitted from the mobile station apparatus;

15 a second judging step in which the base station apparatus judges, when there is any mobile station apparatus the data transmission rate request value of which has not been received this time in said receiving step, as for the relevant mobile station apparatus, whether or not the reception quality measured in said second measuring step is equal to or larger than a reference value; and

25 a control step in which the base station apparatus uses, when it is judged in said second judging step that the measured value of the reception quality is equal to or larger than the reference value, as for the relevant

mobile station apparatus, the previous data transmission rate request value stored in second storing means for storing the data transmission rate request value received in said receiving step by relating it to the mobile station apparatus as the data transmission rate request value to be used for selecting the mobile station apparatus to which data is transmitted.

10. A mobile station apparatus used in a mobile communication system comprising the mobile station apparatus that transmits data transmission rate request value, and a base station apparatus that selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile station apparatus and transmits data to the selected mobile station apparatus at the data transmission rate request value received from the selected mobile station apparatus, comprising:

first measuring means for measuring quality of the received signal from the base station apparatus;
20 deciding means for deciding the data transmission rate request value based on the reception quality measured by said first measuring means;

first storing means for storing the data transmission rate request value decided by said deciding means;
25

first judging means for comparing the previous data transmission rate request value stored in said first

storing means and the latest data transmission rate request value, and judging whether or not both thereof are different from each other; and

controlling means for making the latest data
5 transmission rate request value be transmitted to the base station apparatus when it is judged by said first judging means that the previous data transmission rate request value and the latest data transmission rate request value are different from each other.

10 11. The mobile station apparatus according to claim 10, wherein said controlling means makes the latest data transmission rate request value be transmitted periodically to the base station apparatus when it is judged by said first judging means that the previous data
15 transmission rate request value and the latest data transmission rate request value are the same.

12. A method of controlling information transmission in a mobile station apparatus used in a mobile communication system comprising the mobile station
20 apparatus that transmits data transmission rate request value, and a base station apparatus that selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile station apparatus and transmits data to the
25 selected mobile station apparatus at the data transmission rate request value received from the selected mobile station apparatus, comprising:

a first measuring step of measuring quality of the received signal from the base station apparatus;

a deciding step of deciding the data transmission rate request value based on the reception quality measured
5 in said first measuring step;

a first judging step of comparing the previous data transmission rate request value stored in first storing means for storing the data transmission rate request value decided in said deciding step and the latest data
10 transmission rate request value, and judging whether or not both thereof are different from each other; and

a controlling step of making the latest data transmission rate request value be transmitted to the base station apparatus when it is judged in said first
15 judging step that the previous data transmission rate request value and the latest data transmission rate request value are different from each other.

13. A base station used in a mobile communication system comprising a mobile station apparatus that transmits data
20 transmission rate request value, and the base station apparatus that selects the mobile station apparatus to which data is transmitted based on the data transmission rate request value received from the mobile station apparatus and transmits data to the selected mobile
25 station apparatus at the data transmission rate request value received from the selected mobile station apparatus, comprising:

second measuring means for measuring quality of the received signal from the mobile station apparatus;

receiving means for receiving the data transmission rate request value transmitted from the mobile station apparatus;

second storing means for storing the data transmission rate request value received by said receiving means by relating it to the mobile station apparatus;

second judging means for judging, when there is any mobile station apparatus the data transmission rate request value of which has not been received this time by said receiving means, as for the relevant mobile station apparatus, whether or not the reception quality measured by said second measuring means is equal to or larger than a reference value; and

control means for using, when it is judged by said second judging means that the measured value of the reception quality is equal to or larger than the reference value, as for the relevant mobile station apparatus, the previous data transmission rate request value stored in said second storing means as the data transmission rate request value to be used for selecting the mobile station apparatus to which data is transmitted.

14. The base station apparatus according to claim 13, wherein the reception quality measured by said second measuring means is an SIR of a predetermined pilot symbol

signal.

15 A method of controlling information transmission
in a base station apparatus used in a mobile communication
system comprising a mobile station apparatus that
5 transmits data transmission rate request value, and the
base station apparatus that selects the mobile station
apparatus to which data is transmitted based on the data
transmission rate request value received from the mobile
station apparatus and transmits data to the selected
10 mobile station apparatus at the data transmission rate
request value received from the selected mobile station
apparatus, comprising:

a second measuring step of measuring quality of the
received signal from the mobile station apparatus;

15 a receiving step of receiving the data transmission
rate request value transmitted from the mobile station
apparatus;

a second judging step of judging, when there is any
mobile station apparatus the data transmission rate
20 request value of which has not been received this time
in said receiving step, as for the relevant mobile station
apparatus, whether or not the reception quality measured
in said second measuring step is equal to or larger than
a reference value; and

25 a control step of using, when it is judged in said
second judging step that the measured value of the
reception quality is equal to or larger than the reference

value, as for the relevant mobile station apparatus, the previous data transmission rate request value stored in second storing means for storing the data transmission rate request value received in said receiving step by
5 relating it to the mobile station apparatus as the data transmission rate request value to be used for selecting the mobile station apparatus to which data is transmitted.